

Livestock Grazing and Vegetation Management on Five Project Areas

Fish Biological Evaluation

*Medicine Wheel/Paint Rock Ranger District,
Powder River Ranger District,
and Tongue Ranger District
Bighorn National Forest*

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I. INTRODUCTION

The purpose of this biological evaluation is to determine the likely effects of the alternatives on federally listed fish species (endangered, threatened, and proposed) and Forest Service sensitive fish species (FSM 2670.31-2670.32).

Section 7 of the Endangered Species Act of 1973, as amended, requires federal agencies to use their authorities to carry out programs to conserve endangered and threatened species, and to insure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of listed or proposed species, or result in the destruction or adverse modification of their critical habitats. A Biological Assessment must be prepared for federal actions that are “major construction activities” (also defined as a project significantly affecting the quality of the human environment as defined under NEPA) to evaluate the potential effects of the proposal on listed or proposed species. The contents of the BA are at the discretion of the federal agency, and will depend on the nature of the federal action (50 CFR 402.12(f)).

The Forest Service has established direction in Forest Service Manual 2670 to guide habitat management for Proposed, Endangered, Threatened and Sensitive species (PETS). Preparation of a Biological Evaluation as part of the NEPA process ensures that PETS species receive full consideration in the decision-making process.

II. DESCRIPTION OF THE PROPOSAL

The Bighorn National Forest is proposing to update the Allotment Management Plan (AMP) for 41 allotments in the Little Bighorn, Goose, Rock, Tensleep and Beaver geographic areas. In accordance with NEPA a no action alternative, an alternative action, and a proposed action alternative were developed from identification of issues and scoping. The project area is approximately 401,738 acres in size. Full descriptions including maps of the project area are found in the Environmental Impact Statement (EIS). Refer to the EIS for detailed descriptions of the three alternatives. In summary the alternatives are:

Alternative 1 – No action, no livestock grazing. Under the No Action/No Grazing alternative, no livestock grazing would be permitted on any of the allotments.

Alternative 2 – No change, livestock grazing under current allotment management plans or annual operating instructions. Under the No Change alternative, livestock grazing would continue with current allotment management plans or, in the absence of such a plan, under the annual operating instructions.

Alternative 3 – Proposed action, livestock grazing using adaptive management. Alternative 3, the Proposed Action, focuses on the end results for the resource, as opposed to selecting one specific course of action that will not be deviated from over time.

III. SPECIES CONSIDERED AND THEIR STATUS

On January 25, 2010, a list of proposed, endangered, threatened, and sensitive species (PETS) that may be present in the action area was obtained from the Region 2 Threatened, Endangered, Proposed and Sensitive species web site:

http://fsweb.r2.fs.fed.us/rr/R2_TES_Site_2007/index.html

The following table includes PETS fish species that are located on the Bighorn National Forest, or located adjacent to or downstream of the project area and could potentially be affected. A pre-field review was conducted of available information to assemble occurrence records, describe habitat needs and ecological requirements, and determine whether field reconnaissance was needed to complete the analysis. No fishes listed as proposed, endangered, or threatened under the Endangered Species Act (ESA) occur within the analysis area. The pallid sturgeon (*Scaphirhynchus albus*) occurs downstream of the Forest boundary within the Yellowstone River system. Potential downstream effects to this species were addressed in the Biological Evaluation accompanying the 2005 Revised Forest Plan. Ongoing water depletions on the Forest of agricultural, municipal, and other minor uses such as firefighting and livestock watering were deemed to be of no effect to the downstream habitats of this species. A more recent status review for the pallid sturgeon also did not find water depletions to be a threat worthy of consideration (USFWS 2007). As such, minor water depletions associated with livestock water developments proposed as a part of the Big 6 AMP project will be of no effect to the pallid sturgeon. Given the distance between the project site and downstream habitats for this fish species, any other habitat-related effects such as changes in water quality or physical habitat characteristics resulting from livestock grazing would be negligible and of no effect to individuals or their habitats.

Two fishes listed as Sensitive by Region 2 of the Forest Service occur within or could occur downstream of the analysis area (Table 1).

Table 1. PETS fish species or unoccupied but suitable habitats located on, adjacent to, or downstream of the Bighorn National Forest, which could potentially be affected. Both species are listed as Sensitive by Region 2.

| Common Name | Scientific Name | Known / Suspected to be present? | Suitable habitat present? | Rational if not carried forward for analysis |
|-----------------------------|--------------------------------------|----------------------------------|---------------------------|--|
| Yellowstone cutthroat trout | <i>Oncorhynchus clarkii bouvieri</i> | Yes | Yes – year long | NA |

| | | | | |
|-----------------|---------------------------------|----|----------------------------------|----|
| mountain sucker | <i>Catostomus platyrhynchus</i> | No | Yes – downstream of project area | NA |
|-----------------|---------------------------------|----|----------------------------------|----|

No further analysis is needed for species that are not known or suspected to occur in the analysis area, and for which no suitable habitat is present. If suitable but unoccupied habitat is present, then potential effects are evaluated.

IV. CONSULTATION HISTORY

No consultation with the U.S. Fish and Wildlife Service (FWS) has occurred due to the absence of fish species within the analysis area that are currently listed as Proposed, Threatened, or Endangered under the ESA.

V. ANALYSIS OF EFFECTS – SENSITIVE SPECIES

Yellowstone cutthroat trout

Natural History and Management Status

The Yellowstone cutthroat trout is one of the most abundant and widespread of the 14 subspecies of cutthroat trout (Behnke 1988). Their range once included the Yellowstone River drainage of Montana and Wyoming and portions of the Snake River drainage in Wyoming, Idaho, Nevada, Utah, and possibly Washington (Behnke 1992). Though their distribution once extended downstream to include major rivers of the Yellowstone and Snake River drainages, their current distribution is largely restricted to headwater streams and lakes. May et al. (2007) estimated that 28 percent of the historic range of the species still supports populations that have not been compromised due to hybridization with related species.

Within their current distribution, Yellowstone cutthroat trout inhabit a wide range of stream and lake environments, but generally inhabit cold, clear, well-oxygenated headwater streams and high mountain lakes ranging from 900 ft (275 m) to over 8,500 ft (2,590 m) in elevation, with sand, gravel, or rock bottoms, and abundant, high quality riparian vegetation. Further information on ecology and life history such as spawning, rearing, diet and age can be found in Gresswell (2009).

Management of this species is guided by the Conservation Agreement for Yellowstone Cutthroat Trout (*Oncorhynchus clarkii bouvieri*) in the States of Idaho, Montana, Nevada, Utah and Wyoming and accompanying *Conservation Strategy for Yellowstone Cutthroat Trout (Oncorhynchus clarkii bouvieri) in the States of Idaho, Montana, Nevada, Utah and Wyoming*. As a signatory to the agreement, the U.S. Forest Service is guided by the broad goals and specific objectives established for conservation of the species, including consideration of habitat requirements during land management planning activities such as NEPA documentation.

Primary Threats

Gresswell (2009) identified three major threats to Yellowstone cutthroat trout persistence including 1) non-indigenous species, 2) habitat degradation (e.g., surface water diversions, livestock grazing, mineral extraction, timber harvest, and road building), and 3) global climate change.

Existing Conditions

There are currently 26 populations of Yellowstone cutthroat trout found on the Bighorn National Forest. These populations occupy 94 miles of stream. Of the 26 populations, 11 were considered to be of conservation value by a recent status review (May et al. 2007), conservation strategy (RWYCT 2009a), and conservation agreement (RWYCT 2009b). These priority populations, termed core conservation populations, occupy 22 miles of stream on the BNF. The remaining populations, termed sportfish populations, are considered to be of limited or uncertain conservation value (RWYCT 2009a). These include both naturally reproducing populations and populations supported by supplemental stocking. Many of these sportfish populations occur in close proximity to non-native trout species or are affected by other threats that have compromised their conservation value.

Nine of the conservation populations found on the Bighorn National Forest occur in analysis area watersheds within South Paint Rock Creek, Cedar Creek, South Beaver Creek, North Beaver Creek, South Fork West Pass Creek, North Fork West Pass Creek, South Fork Red Gulch Creek, Elkhorn Creek, Pumpkin Creek, West Fork Little Bighorn River, Mann Creek, and Lodge Grass Creek.

Direct, Indirect, and Cumulative Effects

The following description of effects assumes the Bighorn National Forest vegetation grazing guidelines (USDA Forest Service 2005) are followed and Best Management Practices (BMPs) are applied to ensure allowable use. If guidelines and BMPs are not met, there would be additional environmental effects not considered in this document.

Based on the geographic location of the Bighorn National Forest and local conditions within the analysis area it is realistic to suggest that livestock grazing would produce similar influences to Yellowstone cutthroat trout habitats as those summarized for fish habitats in general within the scientific literature (e.g., Platts 1991). Livestock can directly effect trout populations by trampling their spawning redds (Gregory and Gammett 2009; Peterson et al. 2010). Indirect effects of livestock grazing on Yellowstone cutthroat trout habitats have included habitat degradation resulting from streambank sloughing, channel instability, erosion, and siltation in some areas (Binns 1977; Thurow et al. 1988) while effects appeared less significant in others (Kruse et al. 2000). The magnitude of effects appears to vary across landscapes as a function of a variety of factors such as the timing, intensity, duration, and frequency of livestock grazing as well as inherent susceptibility (i.e., stream gradient, soil type, vegetation type, water availability; Winters et al. 2004).

Given the presence of Yellowstone cutthroat trout within and downstream of the analysis area and the common responses of fish habitats to livestock grazing, there is potential for alternatives 2 and 3 to negatively affect Yellowstone cutthroat trout habitats. Despite this potential, all alternatives have been designed to meet or exceed forest plan standards and guidelines (USDA

Forest Service 2005), thus minimizing risk. While livestock grazing will influence stream habitats under alternatives 2 and 3 through the indirect effects of vegetation utilization, bank trampling, and soil compaction, the application of BMPs, Bighorn National Forest Vegetation Grazing Guidelines (USDA Forest Service 2005), and Watershed Conservation Practices Handbook management measures (USDA Forest Service 2006), will ensure that riparian habitats trend towards desired future conditions.

On the BNF, the effects of livestock grazing, having occurred for over 100 years, have been difficult to separate from other influences such as roads, recreational activities, wild ungulate grazing, and historical activities such tie drives (Winters et al. 2004) and would continue to contribute to the cumulative effects of these activities on watershed conditions.

Determination of Effect and Rationale

Given the absence of any potential direct or indirect effects of livestock grazing on fishes under Alternative 1, it would have **“no impact”** on Yellowstone Cutthroat trout.

Under Alternatives 2 and 3, attempts would be made to maintain fish habitats in a desirable condition using BMPs and other guidance to manage livestock grazing but limited negative direct and indirect impacts may remain. Therefore, it is determined that Alternatives 2 and 3 **“may adversely impact individuals, but is not likely to result in a loss of viability of Yellowstone cutthroat trout populations on the Bighorn National Forest, nor cause a trend to federal listing, or a loss of species viability range wide.”**

Mountain sucker

Natural History and Management Status

The mountain sucker is distributed throughout large portions of the western United States and Canada. Within Region 2, the mountain sucker is most widespread within Wyoming, where it is common to all drainages west of the Continental Divide, and to the Tongue, Powder, Cheyenne, and Belle Fourche drainages east of the Divide (Baxter and Stone 1995; Belica and Nibbelink 2006). It is thought that the species has been extirpated from the North Platte River drainage in southeast Wyoming (Baxter and Stone 1995). Patton et al. (1998) considered the mountain sucker to have declined at 12 of 18 sites, 11 of 15 streams, eight of 10 sub-drainages, and five of five drainages within the Missouri River Basin of Wyoming.

On the Bighorn National Forest, mountain sucker populations are know from two locations, the South Tongue River and Kearney Reservoir on the east side of the Big Horn Mountains. Self-sustaining populations have been identified downstream from the Bighorn National Forest boundary in the Paint Rock, Shell, and Tensleep drainages on the western slope and in the Tongue and Powder River drainages on the eastern slope.

For a variety of reasons, the life history and habitat requirements of the mountain sucker are poorly understood, particularly within Region 2 (Belica and Nibbelink 2006). As with other non-game fishes, the absence of a user group such as anglers to spur interest has hindered the pursuit of active research or conservation efforts (Cooke et al. 2005). In general, the mountain sucker can be found in rivers, lakes or streams at elevations ranging from near sea-level up to

3,048 m (10,000 ft; Smith 1966; Baxter and Stone 1995). Within Region 2, the species tends to be associated with low gradient stream reaches containing high pool to riffle ratios (Belica and Nibbelink 2006), though they can also inhabit reservoirs where they typically utilize tributary streams for spawning (Decker and Erman 1992).

Primary Threats

Belica and Nibbelink (2006) identify habitat loss due to stream impoundment, habitat degradation resulting from sedimentation, construction of fish passage barriers such as impoundments and culverts, and the introduction of non-native fishes as the primary threats to the species. The threat of global climate change should also be acknowledged given the somewhat narrow range of suitable water temperatures inhabited by the species.

Existing Conditions

Mountain sucker are not known to be present in the analysis area but are known to occur downstream of the Forest boundary within the Paint Rock, Shell, and Tensleep drainages on the western slope and in the Tongue and Powder River drainages on the eastern slope.

Direct, Indirect, and Cumulative Effects

Given the absence of known mountain sucker populations within the analysis area, no direct effects are anticipated. Any effects of livestock grazing on mountain sucker habitats are not likely to transmit to populations occurring well downstream of the analysis area. For these reasons, no direct or indirect effects are anticipated. The proposed action would have no cumulative effect on the suitability of mountain sucker habitats downstream of the analysis area.

Determination of Effect and Rationale

Based on the known distribution of mountain suckers populations on the Forest it is determined that Alternatives 1, 2, and 3 will have “**no impact**” on mountain sucker individuals and habitats.

VI. RECOMMENDED MITIGATION OR CONSERVATION MEASURES

No additional design criteria are necessary to avoid or minimize adverse effects to Yellowstone cutthroat trout or mountain sucker populations. The implementation of design criteria contained within the associated EIS, Aquatics Resources Specialists Report, BNF Land and Resource Management Plan (USDA Forest Service 2005) standards and guidelines, Best Management Practices, Clean Water Act, and Wyoming Water Quality rules and regulations, will insure that the habitat for Yellowstone cutthroat trout and mountain sucker will be maintained in a desirable condition for the future.

VII. RESPONSIBILITY FOR A REVISED BIOLOGICAL EVALUATION

This Biological Evaluation was prepared based on presently available information. If the action is modified in a manner that causes effects not considered, or if new information becomes

available that reveals that the action may impact PETS species that in a manner or to an extent not previously considered, a new or revised Biological Evaluation will be required.

VIII. LITERATURE CITED

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